BLIND COST CRITERION TIMING RECOVERY

ABSTRACT OF THE DISCLOSURE

Symbol timing recovery employs a blind cost criterion from the Bussgang class of functions, and its stochastic gradient, to generate a timing phase error used to adjust sampling of received symbols. For one implementation, the estimate is derived in accordance with the Constant Modulus (CM) criterion and its gradient via the CM algorithm (CMA), and the estimate is calculated from a sequence of samples. This estimate is then used to adjust the period and phase of the sample sequence toward the period and phase of the transmitted symbols, driving the timing phase error to zero. The values used may be either i) samples themselves, ii) processed (e.g., interpolated) samples, or iii) equalized and processed samples. In addition, timing phase error estimates for other cost criteria, including the least mean squares algorithm, may be generated. These timing phase error estimates are selected either alone or in combination for deriving the timing phase error used to adjust the period and phase of the sample sequence.